Table of Contents

Reading Reimagined Narrative

UnboundEd, a national nonprofit agency with a stellar record of high-quality teacher professional development leading to student achievement, proposes *Reading Reimagined (RR)*, an exceptional approach to **Absolute Priority (AP) 1- Demonstrates a Rationale** based on meeting the demonstrating a rationale criteria in attached Evidence Form. *Reading Reimagined* also meets **AP 2** through a focus on improving literacy achievement and attainment for students in grades 2-5 who are assessed as African American English (AAE) speakers with below-grade proficiency. It meets **Competitive Preference Priority (CPP) 1** through our partnership with the University of California, Irvine, a Minority Serving Institution, to provide AAE professional development and coaching for teachers in partnering elementary schools. *Reading Reimagined* will transform support for this persistently high-need population through professional development in foundational literacy and language variation instruction and coaching strategies to help students style shift and improve literacy skills in General American English (GAE).

A. Significance (20 Points)- *Development and demonstration of new strategies*

UnboundEd's *Reading Reimagined* will address a significant gap in educational achievement – elementary literacy for Black students. Learning to read and write in elementary grades serves as the foundation for developing content-area knowledge in later grades, and the impacts of lower literacy attainment are seen in ongoing achievement gaps between Black students and other groups. On the 2022 National Assessment of Educational Progress (NAEP), also called the Nation's Report Card, Black students in fourth grade saw a five-point drop in reading compared to 2020, while white fourth graders had only a three-point decrease and Asian fourth graders had a two-point increase. Overall scores by group indicate significant and growing achievement gaps – white fourth graders had an overall score of 227 in 2022, 28 points higher

than the average for Black fourth graders of 199. This is an increase from the score gap of 27 points in 2019. And these gaps persist into later grades. The 2023 National Center for Education Statistics (NCES) reading assessments of 13-year-old students (the age cohort just older than RR's target on grade 2-5 students) showed Black students with a seven-point decline in score (2020 to 2023) of 244 to 237, greater than the numerical decline of Hispanic, White, Asian, and Native American students. This decline also reflects the lowest overall score of all these groups, with Black students at 247 (compared to 264 for white students, for example).

Elementary literacy instruction is clearly not doing justice for the country's Black students and UnboundEd's *Reading Reimagined* (RR) offers promising new strategies that build on existing evidence-based literacy interventions to support teachers in improving literacy instruction for Black students. UnboundEd is partnering with school districts that commit to selecting schools for RR with at least 51% socioeconomically disadvantaged students and at least 51% Black students enrolled. Research shows that approximately 90% of Black/African American students growing up in poverty will be speakers of African American English (AAE) when they enter school (Craig & Washington, 2006), which is classified as a formal dialect of General American English (GAE). This contrasts with a survey of 571 teachers in Ohio that found only 14% of teachers reported having academic training addressing dialects of English and, unsurprisingly, given the lack of training, only 28% of teachers agreed they were knowledgeable about how to teach students to shift to GAE when writing (Diehm & Hendricks 2021). While many schools and teachers may view AAE as "slang," it is a rule-governed language system with its own phonology (pronunciation), vocabulary, and morphosyntactic features (grammatical characteristics). Although such language differences *can* contribute to

poor reading performance, research indicates that supportive and effective language and literacy instruction can help bidialectal students do well in school (Terry et al., 2018).

Reading Reimagined will integrate three promising strategies into a new professional learning program for second through fifth grade teachers: 1) foundational skills in literacy instruction premised on the science of reading; 2) language variation and literacy with culturally responsive practices for diverse readers; and 3) classroom-based coaching.

Foundational skills in reading will be taught in a three-day training covering Basic Skills (structure of English, phonological and phonemic awareness, decoding and word recognition, explicit phonics, and irregular word reading), Advanced Skills (multisyllabic word reading, spelling, passage reading fluency), and Syntax and Semantics (vocabulary, syntax, and sentence comprehension). It builds on Elementary Reading Academy, a six-day comprehensive elementary literacy training developed by UnboundEd partner, the Consortium on Reaching Excellence in Education (CORE). UnboundEd will work with CORE in RR to modify the full Academy to a shorter version focused on the components of language and literacy that teachers must understand to prepare for language variation training. This component of RR will contribute to the research base for the science of reading by building on CORE's past results: after participating in CORE's Academy, Washington Elementary School in Colorado saw the percentage of students scoring "at or above benchmark" on the Dynamic Indicators of Basic Early Literacy Skills (DIBELS) go from 48% in 2013-14 to a remarkable 84% three years later.

The second RR component, language variation training, will cover a review of sociolinguistics (intersections between society, language, and culture), defining language variation and its relation to components of oral language (morphology, syntax, phonology, semantics, and pragmatics), and culturally responsive practices for diverse readers (language

sampling, dynamic assessment, processing-dependent tasks, contrastive analysis, encouraging bidialectalism, use of authentic material, and introduction to vocabulary). There is promising evidence for language variation training, notably for contrastive analysis that helps students learn how to "style shift" (sometimes called "dialect shift") or select AAE or GAE depending on the circumstances. Contrastive analysis explicitly compares words, phrases, or sentences in AAE and GAE to enable style shifting. A study of 3rd and 4th-grade AAE speakers grouped students into three conditions: exposure to GAE, exposure plus an explanation of GAE rules, and exposure plus explanation plus practice changing sentences from AAE to GAE. Students in the third condition significantly outperformed students in the first two in changing sentences from AAE to GAE and using less AAE in a writing prompt (Fogel & Ehri, 2000). A feasibility study of a style-shifting curriculum taught to K-3rd grade students found statistically significant differences in students' dialect awareness and Situational Shifting (using different dialects in different settings) after the intervention, and teachers reported increased knowledge of language variation, diversified ways they would address it during instruction, and observed changes in how and where students used AAE or GAE (Byrd & Brown, 2021).

Johnson et al. (2017) implemented two studies of teaching style shifting to AAE speakers. The first randomly assigned grade 2-4 AAE speakers to a control ("business as usual"), an editing intervention with only an implicit focus on style shifting, and full dialect awareness (DAWS) that covered editing plus explicit instruction comparing home English (AAE) and school English (GAE) and "appropriate" settings for each (this is study terminology, though it was designed to be respectful of both AAE and GAE). DAWS targeted copula/auxiliaries, plurals, and past tense in this study and included explicit directions on when to use GAE for schoolwork. Students in the DAWS intervention used more GAE than AAE in a dialect density

assessment, writing sample, and editing task with a mean effect size of 0.44 for all three outcomes, which authors characterize as "educationally meaningful" (p. 2022). Johnson's second study randomly assigned grade 2-4 AAE speakers to a control or DAWS group. In this study, DAWS included the aforementioned topics and added subject-verb agreement, possessives, and preterit had (simple past tense of verb). When controlling for pre-test scores, the DAWS group performed significantly better on an editing task (a large effect size $d = 1.48$), had stronger scores on morphosyntactic awareness (understanding how units of language fit into sentence structures; effect size $d = 0.326$, characterized by the authors as an educationally meaningful effect size for the students' age), and used much less AAE in a writing narrative (effect size $d = 0.214$, characterized by the authors as educationally meaningful for an 8-week intervention). DAWS was more effective for students with high dialect density who, prior to the intervention, had lower editing and morphosyntactic awareness scores and used more AAE in writing. The authors calculated the total standardized effect of DAWS on reading comprehension was 0.18.

RR builds on the DAWS model by adding two new strategies. UE's main innovation is that we will teach classroom teachers how to improve differentiated instruction to help AAE speakers learn how to style shift (research assistants implemented DAWS as an intervention outside of classroom instruction). A meta-analysis of 18 studies on the impact of Tier 1 differentiation on the literacy outcomes of fluency, decoding, letter-word reading, vocabulary, comprehension, and writing achievement found it is an effective evidence-based practice at the elementary level, leading to higher literacy achievement scores (Puzio et al, 2020). A second way RR will build on existing practices is to explicitly frame speaking AAE as an asset, not a target for intervention, in light of research that shows bidialectalism is a strength that can be leveraged to support literacy learning (Mitri & Terry, 2014; Terry, 2014; Terry et al., 2018). RR

is premised on the linguistic awareness-flexibility hypothesis that metacognitive awareness of language structures (being able to identify AAE vs. GAE) is needed for reading, and ability to style shift demonstrates a child has greater metalinguistic awareness (Terry et al., 2010).

The third component of RR is classroom coaching. UnboundEd will contract with partner CORE, whose expert educators have extensive experience with job-embedded coaching for teachers to help them implement newly learned instructional practices. This includes two components: 1) Lesson study (review and deepen teachers' understanding of instructional practices and materials, review and practice instructional routines, and integrate RR into wider instructional planning) and 2) Coaching (demonstration lessons, co-teaching, observation and feedback, and assistance resolving implementation challenges). Classroom coaching builds on CORE's track record with classroom implementation support. CORE provided coaching and implementation support for Woodbine Elementary in California in 2017-18 for their *Systematic Instruction in Phonological Awareness, Phonics, and Sight Words (SIPPS)* foundational skills program. After two years of CORE coaching, the school significantly reduced the distance from standard for all students (-94 to -55) and closed achievement gaps for historically disadvantaged groups, including English learners, students with disabilities, and low-income students.

B. Quality of the Project Design *Conceptual framework underlying research*

Please see the RR Logic Model in Appendix G to visualize the conceptual framework. UnboundEd collaborated with ███████████████ from the University of California, Irvine (a Minority-Serving Institution) to develop RR, drawing on ████████████ applied research on language variation, style shifting, and literacy outcomes for AAE speaking students. RR selected the three components – foundational literacy instruction, language variation, and classroom coaching – because research demonstrates that each leads to improvements in literacy

instruction by teachers, including specifically improved perception and pedagogy regarding the use of AAE, increased use of culturally relevant instructional techniques, and increased teaching self-efficacy, as well as improved literacy and reading comprehension outcomes for students.

Foundational literacy instruction is included because empirical studies indicate that many teachers do not have explicit knowledge of English linguistic structures (Diehm & Hendricks, 2021; Moats & Foorman, 2003), and research studies have shown value of teachers developing a greater technical understanding of the science of reading, including linguistic terminology to promote student literacy growth (Snow et al., 2005; Diehm 2021). UnboundEd will work with CORE to modify its Elementary Reading Academy from a 36-hour training to 18 hours covering the structure of English (phonemes and phonology, sound/spelling correspondences, syllables, morphemes and morphology); foundational skills in reading, including phonological and phonemic awareness (such as the sounds of p, b, d, and t), decoding and word recognition, explicit phonics lesson sequence, irregular word reading, multisyllabic word reading, spelling, and passage reading fluency; and syntax and semantics, including vocabulary, syntax, and sentence comprehension. Together these topics are key to developing skills that form the basis for automatic reading (Scarborough, 2001). Elementary Reading Academy is based on CORE's nationally recognized books, *Teaching Reading Sourcebook* (3rd Ed.) and *Assessing Reading: Multiple Measures* (Revised 2nd Ed.), used in university teacher preparation courses and reviewed as a top text by the National Council on Teacher Quality (NCTQ). RR aligns with recommendations from the WWC Practice Guide (March 2022), *Providing Reading Interventions for Students in Grades 4–9* by building students' decoding skills (strong evidence), providing purposeful fluency-building activities (strong evidence), and using a set of comprehension-building practices like building word knowledge to help students make sense of

text (strong evidence). Teachers must understand how children learn to read and develop oral language skills to effectively instruct students on style shifting between AAE and GAE.

Language variation training will start with a discussion of sociolinguistics on how language and power intersect in our society and comparing and contrasting cultural competency and cultural humility when teaching AAE speakers. RR has an asset-based approach to value AAE and GAE equally and help teachers develop positive perceptions of AAE as a formal dialect. Increasing teachers' understanding of AAE as a formal dialect has increased positive attitudes toward AAE (Fogel & Ehri, 2006).

Reading Reimagined will define language variation (bidialectalism and bilingualism) and its relation to the components of oral language: morphology, syntax, phonology, semantics, and pragmatics. For example, AAE has distinct phonological features (vowel shifts, consonant cluster reduction, and substitution of consonants) that naturally lead to discrepancies when learning to read GAE (e.g., "th" in *bath* pronounced as *baf*). Language variation training will continue with concrete culturally responsive assessment practices that account for cultural differences that affect each student's knowledge and adapt assessments accordingly so that each student is accurately assessed (Gay, 2000). In RR these include language sampling (having the student orally describe a visual depiction of something and analyzing elements of language like morphology/word structure), dynamic assessments (assessing a skill, providing scaffolded supports and explicit instruction around an area of identified need for a student, and re-assessing for growth in that skill and for their responsiveness/ability to learn from instruction), processing-dependent tasks (those that do not depend on a student's prior knowledge or experiences), and contrastive analysis (systematic comparison of AAE and GAE to describe similarities/differences). Language variation training concludes with culturally responsive

Reading Reimagined

instructional practices, including dialect-infused literacy practices to encourage bidialectalism, or the ability to shift between AAE and GAE based on the situation; use of authentic material; and introduction to vocabulary. Culturally responsive practices are demonstrated by research (see below) to help teachers develop positive perceptions of AAE as a formal dialect, recognize when a student is speaking AAE, provide differentiated instruction to AAE speakers on differences between GAE and AAE, and empower students as multi-dialectical speakers, while recognizing that increased understanding of GAE supports stronger reading and literacy outcomes.

Descriptive results of a study (Gatlin-Nash & Terry, 2022) that randomly assigned grade 2-3 students to a control (math group), contrastive analysis condition (explicit instruction in style shifting and why language use varies by context), morphological awareness condition, and contrastive analysis + morphological awareness condition found that students in each condition improved only on measures directly related to their intervention (e.g., contrastive analysis led to increased dialect shifting but not improved morphological awareness). The DAWS intervention (pp. 4-5) similarly found contrastive analysis of "home" and "school" English improved student outcomes more than merely teaching the rules of "school" English. Accordingly, foundational literacy is combined with language variation training in RR to enable teachers to implement both language awareness and dialect-informed instruction since only one or the other is less likely to improve reading and language outcomes for AAE-speaking students.

Once teachers conclude training, they will receive coaching and lesson study (7 days per school, mix of in-person and virtual). Coaching is shown to increase likelihood of teachers offering rigorous differentiated instruction using research-based practices (Devine et al., 2013; Aguilar, 2013; Gallant & Gilham, 2014) – a key RR objective.

UnboundEd is aware that teachers and districts have challenges with capacity constraints, restrictive release time, and travel costs. As we build out online professional development (PD) options, these will increase accessibility in two ways beyond the grant period: free content can be accessed by any teacher via our instructional resources library, and RR will drive scalable results through a hybrid model of in-person and online professional development, which enables us to reduce travel costs and the need for release time for educators. Online learning increases equitable access to high-quality professional learning for high-need school districts, particularly in rural areas, many of which cannot afford the higher financial and time costs of in-person PD. RR provides a model for scalability to bring high-quality, cost-effective PD at many more school districts than possible with in-person options. Moreover, a randomized experiment on curriculum implementation found that online PD can produce a similar impact on measures of teacher beliefs, classroom practices, and student learning as face-to-face PD (Fishman et al, 2013).

Goals, objectives, and outcomes to be achieved are clearly specified and measurable (5 points)

Valid baseline data for teacher and student outcomes and performance measures discussed below will be established at the beginning of school years in which the pilot cohorts (fall 2024, fall 2025) and impact study (fall 2026) are conducted based on recruitment efforts UE staff will undertake from Jan 2024 on. School districts have expressed strong interest but are not yet formally partnered with commitment letters, MOUs, and Data Sharing Agreements in place. School district partners will be recruited during the first year to participate in *RR*.

Outcomes and performance measure targets discussed below are ambitious yet achievable compared to the baseline due to several factors. The persistent low achievement of Black students on reading achievement assessments such as on the NAEP (pp. 2-3 above) demonstrate significant challenges in boosting scores (a majority of RR students will demonstrate

improvements on literacy screeners (grades 2-3) or state standardized test scores (grades 4-5)).

The research base and track record of improved student reading achievement in all three RR

components described above demonstrate the achievable nature of these outcomes. This includes

foundational reading instruction (p. 6), language variation training (pp. 2-4, 7, 8, 12-13 and the

Evidence Form in the Appendix), and Coaching services (p. 5).

Goal 1: Improve reading comprehension and literacy achievement in General American	
Objective	**Outcome/Performance Measure**
1a. Students improve their ability to style shift between AAE/GAE.	1a. Teachers report increased student use of GAE on writing and oral academic work.
1b: Students show increased proficiency in reading and writing assessment measures after teachers receive RR services.	1b: Over 50% of students below grade level at baseline show improvements in reading levels after teacher support services. Assessed through literacy screener (e.g., DIBELS) in grades 2-3 and through state standardized tests in English Language Arts (ELA) in grades 4-5.
Goal 2: Improve teacher capacity to support AAE student literacy outcomes.	
2a. Teachers show increased knowledge of foundational language and literacy skills.	2a. Teachers completing RR PD and coaching demonstrate an understanding of foundational reading skills on a *Teacher Knowledge of Early Literacy Skills* assessment.
2b. Teachers demonstrate an increased understanding of linguistic terminology, language variation, and skills for differentiated instruction in style shifting (AAE speakers.)	2b. Teachers show improved perception and pedagogy regarding AAE. Measured in completion of skills assessment and *Perception and Pedagogy Regarding the Use of AAE* assessment (Appendix).
2c. Teachers reflect improved teaching self-efficacy after completing RR services.	2c. 50% or more of teachers show improved teaching efficacy as measured through a 12-item *Self-Efficacy Scale* (Appendix).
Goal 3: Refine and test *Reading Reimagined* (RR) program for wider adoption during Early Phase (January 2024- July 2026).	

3a. Design, implement, monitor, and improve the RR program during the Pilot phase.	3a. As demonstrated through signed MOUs and completed Data Sharing Agreements with districts, 48 teachers at 6 schools participate. are trained on RR, tracked with attendance.
3b. Collect and analyze data from RR implementation.	3b. The staff works with evaluators to collect and analyze data collected through teacher surveys (pre- and post-training), site visit checklists and reports (Coaches), attendance logs, student focus groups, and teacher interviews.
3c. Revise/refine instruction and coaching for full implementation.	3c. Full implementation model created as documented in Quarterly Implementation Reports.
Goal 4: Implement and evaluate full RR program (July 2026 - June 2027).	
4a. Recruit and enroll schools and teachers into RR. Randomly assign 20 to treatment and 20 to control groups working with the evaluator.	4a. 320 teachers at 40 schools enroll. Signed MOUs with Data Sharing Agreements by districts with Teacher Commitment Agreements.
4b. Implement RR with treatment teachers while collecting implementation data and assessing the impact of services.	4b. Staff implements program, works with evaluator to collect / analyze data as assessed through teacher surveys (pre- and post-training), site visit checklists and reports (Coaches), and attendance logs.
4c. Analyze student achievement data for the treatment group.	4c. Over 50% of treatment students demonstrate improvement in literacy and reading comprehension, measured by a universal screener in literacy (e.g., DIBELS) for grade 2-3 students and by state standardized ELA test scores (grade 4-5 students).
4d. Completion and dissemination of impact study findings.	4d. Impact report meeting *What Works Clearinghouse* (WWC) standards without reservations available at project end. Submitted to WWC for consideration. A research paper published. Conference presentations. Available on UE website.
Goal 5: Implement delayed treatment for teachers formerly part of the control (July 2027- June 2028).	
5a. Offer delayed treatment to formerly control teachers in the study.	5a. 160 teachers at 20 schools receive RR services, as measured through MOUs, Teacher Commitment Letters, and attendance logs.

Design of project is appropriate to and addresses target population needs or other needs

    Reading Reimagined targets classroom teachers in majority Black schools with an ultimate target of high-need African American English (AAE) speakers in grades 2-5 who are below grade level in reading and test as moderate to high-density AAE speakers based on DELV assessments at the beginning of the school year. Multiple research studies have shown that a higher dialect density by students who are AAE speakers can lead to greater struggles with literacy acquisition due to linguistic mismatch (Byrd & Brown, 2021; Charity et al., 2004; Craig & Washington, 2006; Washington et al., 2018). The profile of this student population shows a heightened risk for academic failure. The RR design is appropriate for district and school partners who are mindful of this urgent need and understand that student use of AAE is a strength that can support improvements in reading and writing.

    RR will use each school's baseline literacy assessment to identify the percent of students below proficiency in grades 2-3 (such as Dynamic Indicators of Basic Early Literacy Skills- DIBELS) and state standardized test results for students in grades 4-5. RR teachers will then administer the Diagnostic Evaluation of English Variation- Screening (DELV-S) test for language variation Part I, which identifies whether students speak General American English (GAE) or non-GAE variations such as African American English (AAE), and if AAE, the "density" of their dialect or proportion of language that include morphological, phonological, or syntactic features of AAE. Mid- to high-density AAE speakers are RR's high need student population, as the differences between their oral language and reading is larger than for children with less dialect density, so high-density speakers need more support (Washington et al., 2023). RR partners with *40* school districts that serve majorities of Black students and that commit to selecting schools with a minimum of 51% socioeconomically disadvantaged students and at least

Reading Reimagined   14

51% Black students. We anticipate this will yield a large population of AAE speakers, as research shows approximately 90% of Black/African American students growing up in poverty will be AAE speakers when they enter school (Craig & Washington, 2006).

Gatlin & Wanzek (2015) conducted a meta-analysis that examined 19 studies with a majority (70%) of African American participants that "showed a negative and moderate relationship between dialect use and overall literacy performance and for dialect and reading" (p. 1306). Research shows that AAE speakers can face more challenges with reading achievement given misalignment of students' oral skills learned outside of the classroom and the new print skills they seek to master (to be addressed in RR). Brown et al. (2015) show that when student print and oral skills do not match, it can take three times as many trials to achieve mastery compared to those with stronger alignment. Several studies found "significant, moderate, and often negative associations between children's spoken AAE use and specific reading skills" (Charity et al., 2004; Gatlin & Wanzek, 2015; Gatlin-Nash & Terry, 2022; Terry et al., 2010).

Terry (2023) completed a study of African American children in grades 1-4 that showed stagnant oral language development as children progressed from first grade to later grades. Studies have shown the effectiveness of services that target students who are AAE speakers to address gaps in reading achievement. In Gatlin-Nash & Terry (2022), a pilot study examined a relatively brief intervention in dialect shifting for AAE speakers during afterschool hours that improved language skills, suggesting that a longer-term differentiated instruction model such as RR could lead to even greater gains for students.

UnboundEd is committed to infusing culturally responsive instruction into all of our professional learning. State assessments and National Assessment of Educational Progress results show that US students continue to make minimal progress in reading and reveal the

glaring persistence of an "achievement gap" between students of color and white peers. While UnboundEd agrees that progress has stalled, we disagree that this "gap" reflects student capabilities, but rather a gap in what adults provide students. "Achievement" scores highlight the degree to which adults have struggled to provide grade-level, meaningful, and affirming instruction. **UnboundEd combats this "provision gap"** by placing our program to support students who are African American English speakers on a foundation of culturally responsive instruction (CRI), with training on elements such as dialect-infused literacy practices like contrastive analysis to encourage bidialectalism, and the use of authentic material/vocabulary.

Culturally responsive instruction, often used interchangeably with culturally *relevant* instruction, is "a pedagogy that empowers students intellectually, socially, emotionally, and politically by using cultural referents to impart knowledge, skills, and attitudes" (Ladson-Billings, 1994). It values and affirms students' cultural backgrounds, knowledge, and experiences by integrating these into instruction. CRI requires educators to know students individually and tailor lessons so that language, stories, and examples are student-centered, meaning they use topics and vocabulary familiar to students, connecting what they know with new knowledge (e.g., use of authentic material and vocabulary). Well-implemented CRI efforts bolsters academic achievement (Powell et al., 2016). CRI efforts are linked to improvements in student's academic self-concept (Cole, 2016; Carjuzaa, 2012) which, in turn, are shown to help raise academic and life outcomes (Bouchey & Harter, 2005; Guay et al., 2003; Howard, 2003).

RR will help educators improve their teaching practice to better meet the needs of the target population of AAE speakers. A survey in Ohio (Diehm & Hendricks, 2021) indicates that only one-third of classroom teachers reported that their school provided them with resources to support cultural and linguistic teaching features. Only 14% of teachers reported having academic

training addressing dialects of English, while only 7% reported continuing education and professional development with these resources. Another descriptive study (Gupta, 2010) found that elementary school teachers had a limited understanding of AAE linguistic features and limited pedagogical skills to address AAE issues faced by their students in literacy acquisition. They felt that teacher education programs at the pre-service level did not provide an appropriate foundation for teaching AAE speaking students. The National Council for Accreditation of Teacher Education (NCATE) expects graduates to complete multicultural coursework. Yet training they receive and feel comfortable applying in the classroom can vary. Research shows that teacher preparation to support student achievement is notably low with regards to linguistic varieties of English such as AAE (Gibson & Terrell Shockley, 2018) - a key RR component.

The RR project design includes the active commitment of district partners and elementary schools, to be recruited in year 1. All district partners will complete a Memorandum of Understanding (MOU) and Data Sharing Agreement with UnboundEd and AIR, the independent evaluator. District support includes identifying schools to be randomized for the impact evaluation (with control schools receiving delayed treatment the year following the study to support retention in the study).

C. Quality of Project Personnel

Applications from members of groups underrepresented. Key personnel qualifications.

The RR project targets services to predominantly Black elementary students who are AAE speakers. UnboundEd uses our focus on equity and commitment to disrupting patterns of implicit bias, privilege, and racism to seek out and hire a diverse and committed staff well represented by historically underserved groups. More than a third (34%) of current UE employees identify as Black and well over half (59%) identify as people of color, and we

continually strive to improve this staff diversity. We recruit extensively from school districts and higher education partners and publicize open positions on job boards to attract a broad range of qualified candidates. UE will leverage our outreach network and process in place to encourage these applications. Please see UnboundEd's attached GEPA statement for greater detail.

The Personnel Table below defines staff roles and responsibilities in RR. Please see Appendix for resumes detailing the qualifications and past experience of all personnel.

Staff Name/ Position	Responsibilities and Qualifications
Project Director - ███ ███ (federally funded)	Recruitment, selection, and staff/partner management. Monitor budget status working with UE CFO and financial staff; manage tracking and reporting; coordinate partner activities. Maintain and develop reading PD and Coaching knowledge, including foundational literacy and language variation; attend conferences. Education qualifications include at least Master's degree in Education and/or Educational Administration with 10 years of administrative/managerial experience.
Program Manager (federally funded)	Will be hired upon grant award and will support the Program Director with day-to-day operations. 3-5 years of education programmatic experience with MA in education or related field.
███████, President & CEO-UnboundEd (leveraged)	Oversee creation, development, and implementation of RR model and research base working with districts and schools. Master's in Education (MEd) and seven years leading UE.
███████, UE COO (leveraged)	Manage compliance and implementation of services. Direct oversight of the Director and all services provided in RR.
███████, Co-Investigator	UC Irvine Associate Professor will work with the Director and staff to develop and update Language Variation training and support coaching. Ph.D. (Curriculum & Instruction: Special Education). Eight years of educational research experience.

████████████, CORE President	Directs CORE services, including foundational literacy training development. Over 25 years' experience in education roles (teacher, district administrator, and overseeing professional development for educators). Ed.D. in Organizational Leadership and MS in Curriculum, Instruction, and Technology.
██████████, CORE Vice President of Literacy	Oversees foundational literacy training and CORE Consultants. Over 20 years' experience in reading and literacy professional development for educators. Ph.D. in Education and MS in Educational Psychology.
Coaching Specialists (4) (federally funded)	Implementation of Coaching services to partner schools. Conducts online workshops/ professional development; facilitates co-teaching, observations, and feedback, while modeling lessons and planning. Master's degree. Minimum five years' educational administrative/teaching experience.
████████, Vice President of Research & Evaluation (federally funded)	Work with Director and Evaluator to support teacher professional development and coaching. 9 years' experience with teaching and education program and policy development. Ph.D. in Education Policy and MA in Public Policy.
████████, Senior Research Manager (federally funded)	Work with Director and Evaluator to gather essential teacher and student data. 10 years' experience conducting research on education programs. Ph.D. and MA in Sociology.
Vice President, Finance, ████████████ (leveraged)	Oversee financial reporting and budget review working with Director.
Assistant Controller (federally funded)	Monthly collection of required financial data working with Program Manager. 3-5 years of financial and accounting experience with a BA in Accounting or a related field.

RR will create and maintain a **Partnership Board** to include a representative from each partner, including each school district. The Board meets twice yearly via remote conferencing led by the Project Director. It will discuss program design and implementation, provide a review of interim results, and discuss challenges in implementation and support that arise.

Partner and Role in Project	Key Personnel Participating
School district partners- teacher and student achievement support	Established with partnership agreements
University of California, Irvine- Minority Serving Institution and teacher professional development (PD) support	███████████████, Co-Investigator
Consortium on Reaching Excellence in Education (CORE)- Coaching and teacher PD	█████████, President
AIR- independent evaluation (evaluation team will also meet separately each quarter)	█████████, Principal Researcher (Certified Reviewer- Group Design Standards, Version 5.0, *What Works Clearinghouse*) ████████████████, Impact Lead ██████████, Implementation Study Lead

D. Quality of the Management Plan

Adequacy of management plan to achieve project objectives on time and within budget

As Lead and Fiscal Agent, UnboundEd (UE) will provide oversight of all administrative and management tasks while working with consultants and partners, including school districts and AIR (evaluation partner). UE will monitor and support activities supporting RR goals and provide technical assistance to schools in the Pilot and Implementation Cohorts. UE will manage fiscal matters using staff with the responsibilities described above and manage program data and evaluation results (AIR). UE relies on data partnerships and continuous quality improvement, including Data Sharing Agreements, with each district implementing *RR*. UnboundEd will include three project phases- ***Pilot*** (cohort 1 July 2024 - June 2025; cohort 2 July 2025 - June 2026), ***Implementation*** with 20 treatment and 20 control schools (July 2026 - June 2027), and ***delayed treatment*** for the former control schools the year after implementation (July 2027 -June 2028). During the Pilot, RR will serve a three schools per cohort with professional development

and coaching and assess implementation effectiveness before targeting the implementation

cohort for the impact study of program effectiveness. Please find a timeline of activities below

with *italicized milestones*.

Tasks / *Milestones*	Timeline	Resp. Party
Hire staff, recruit cohort 1 Pilot schools, execute AIR & CORE subcontracts, develop eval tools/protocols, *finalize training: foundational literacy (18 hours), language variation (6), teacher coaching materials, lesson plans (6).*	Jan- July 2024	Project Director working with Manager and partners, including UCI Co-Investigator
Register training on Registry of Efficacy and Effectiveness Studies (REES); *obtain Institutional Review Board exemption*; *develop teacher questionnaire*, fidelity monitoring, finalize eval design	Jan - July 2024	AIR Principal Researcher
Formalize Pilot partnerships with 3 schools. *Execute Memoranda of Understanding and Data Sharing Agreements with partner districts/schools.*	April - July 2024	UnboundEd (UE), CORE, AIR, schools/districts
Community information sessions with administrators, teachers, and parents to explain program and purpose.	Apr- June 2024	Parent Teacher Org, UE Manager
Pilot cohort 1 begins. Complete *teacher baseline assessments* of reading skills and AAE knowledge. *Student pre- program assessments (reading proficiency) complete.*	July - Sept 2024	AIR Principal researcher and data staff. Co-Investigator
Pilot cohort 1: facilitate professional development (foundational literacy (18 hours per teacher) and AAE language variation training (6 hours per teacher) with Coaching (5 days per school).	July 2024 - June 2025	UE Director, Manager, CORE Coaches. Co-Investigator

Recruit Pilot cohort 2 schools, formalize partnerships, host community info sessions. *Execute Memoranda of Understanding and Data Sharing Agreements with partner districts/schools.*	Jan - May 2025	UE, schools/districts, Parent Teacher Org, UE Manager
Complete *assessment of student achievement* from classrooms of Teachers completing Pilot cohort 1.	June 2025	AIR staff, Co-Investigator
Pilot cohort 2: facilitate professional development (foundational literacy (18 hours per teacher) and AAE language variation training (6 hours per teacher) with Coaching (5 days per school).	July 2025 - June 2026	UE Director, Manager, CORE Coaches. Co-Investigator
Recruit impact cohort and randomly assign 20 to treatment and 20 to control groups. *Complete district MOUs, data sharing agreements.*	Jan- June 2026	UE Manager, AIR staff
Complete *assessment of student achievement* from classrooms of Teachers completing Pilot cohort 2.	June 2026	AIR staff, Co-Investigator
Implementation cohorts complete teacher *baseline assessments* of foundational reading skills and AAE knowledge, complete *student pre-program literacy screener*, facilitate school community sessions.	July- Sept 2026	UE Manager, AIR staff, teachers/staff, Co-Investigator
Impact Treatment cohort: facilitate professional development (foundational literacy (18 hours per teacher) and AAE language variation training (6 hours per teacher) with Coaching (7 days per school); collect teacher and administrative qualitative data.	Aug 2026 - June 2027	UE Manager, AIR staff, Coaches, teachers, staff
Complete post-assessment of student achievement from Teachers completing RR treatment.	June 2027	AIR staff and data staff

Delayed treatment for former control schools: facilitate professional development (foundational literacy (18 hours per teacher) and AAE language variation training (6 hours per teacher) with Coaching (6 days per school)	July 2027 - June 2028	UE Manager, CORE Coaches, teachers/ staff, Co-Investigator
Final impact analyses, summative evaluation report completed.	July - Dec 2028	AIR Principal Researcher, Impact Lead,
Management Tasks (1/2024- 12/2027)		
School meetings for feedback, data review, and discussions. Program team meetings.	Quarterly	UE Manager, CORE Coaches, teachers/staff
Evaluation Team Meetings	Quarterly	UE Manager, AIR staff
Partnership Board meetings to review all RR services	Twice a year	All partners, including districts, CORE, UCI, AIR
Grants Management meetings to assess programmatic successes and challenges, track fiscal spend rates, create action plans as needed for partners and schools	Quarterly	UE Director/Manager CORE Coaches, Co-Investigator
Evaluate performance relative to annual benchmarks and report progress to U.S. Dept of Education	Annually	UE Director
Formative evaluation feedback memos completed	Annually	AIR Principal Researcher, Impact Lead,
EIR Project Director meetings	Annually	UE Director

Continuous improvement is provided through an ongoing review process. This will include project data review through process evaluation activities led by AIR and UE's project team. RR will create Interim RR Data Reports with snapshots of progress meeting performance indicators by breaking down goals into quarterly benchmarks. For RR, this includes tracking teachers served, training and coaching hours provided, attendance in training (number of sessions and time spent), and coaching sessions completed. This allows for rapid service improvements when shorter-term benchmarks are not met and supports reaching long-term goals.

Project staff led by the Director will convene quarterly staff meetings and twice-yearly partner meetings to review data and refine service delivery. These will discuss successes and challenges related to implementation, integration, current student needs, and project progress. UE staff led by the Director will hold quarterly meetings with AIR to discuss progress; the evaluator will share feedback annually via Formative Evaluation Feedback memos. AIR will collect qualitative data by interviewing PD facilitators, other staff, and teachers.

UnboundEd has quality, fiscal, and administrative controls in place to monitor grants and utilizes procedures to ensure that services are provided as specified and in compliance with grant requirements. Reporting to the UE Board of Directors each quarter, the UE Chief Executive Officer and Chief Operating Officer exercise oversight of program services to ensure that core program objectives are achieved, and programs are accountable for all awarded funds. Compliance will be monitored by the UE Chief Operating Officer ████████, while fiscal compliance is monitored and led by the Director of Finance and Operations ████████████.

E. Quality of the Project Evaluation

AIR will conduct an independent evaluation of Reading Reimagined that is designed to

meet What Works Clearinghouse (WWC) standards without reservations. The evaluation

will address two confirmatory and two exploratory research questions (RQs) about the program

impact, as shown in Exhibit 1. This research design will yield causal estimates of the impact of

Reading Reimagined on student and teacher outcomes. To help interpret impact findings and

inform continuous improvement of the program, we also plan to address three RQs about the

implementation of Reading Reimagined—including the professional learning, lesson plan, and

instructional coaching components. The implementation study will provide formative feedback

to UnboundEd about teachers' perceptions of the professional learning and supports associated

with the Reading Reimagined program, the facilitators of and barriers to implementation, and

how these relate to impacts on teacher self-efficacy and student achievement.

Exhibit 1. Research Questions and Data Sources

Research question	Data sources
Confirmatory impact analyses	
RQ 1: What is the impact of Reading Reimagined on student reading outcomes?	· Universal screener in literacy (e.g., DIBELS) · English language arts (ELA) state standardized test scores · Diagnostic Evaluation of Language Variation (DELV) · Student administrative data

RQ 2: What is the impact of Reading Reimagined on teachers' perception and pedagogy regarding the use of African American English (AAE), use of culturally relevant instruction, and teaching self-efficacy?	· Teacher survey
Exploratory impact analyses	
RQ 3: To what extent is the impact of Reading Reimagined on students' reading outcomes moderated by student and teacher background characteristics?	· Teacher survey · Universal screener in literacy · ELA state standardized test scores · DELV · Student administrative data
RQ 4: To what extent is the impact of Reading Reimagined on students' reading outcomes mediated by teachers' perception and pedagogy regarding the use of AAE, use of culturally relevant instruction, and teaching self-efficacy?	· Teacher survey · Universal screener in literacy · ELA state standardized test scores · DELV · Student administrative data
Implementation analyses	
RQ 5: What are teachers' and students' perceptions of the Reading Reimagined program?	· Teacher feedback surveys after initial training · Teacher survey (pilot cohorts 1 & 2; impact cohort) · Student focus groups (pilot cohorts 1 & 2) · Teacher interviews (pilot cohorts 1 & 2)
RQ 6: To what extent is the Reading Reimagined program implemented with fidelity?	· Teacher survey (pilot cohorts 1 & 2; impact cohort) · Program records (attendance log; facilitator checklist) · Coaches' site visit reports · Teacher, coach interviews (pilot cohorts 1 & 2)
RQ 7: What factors hinder or facilitate the implementation of the Reading Reimagined program?	· Teacher survey (pilot cohorts 1 & 2; impact cohort) · Teacher, coach interviews (pilot cohorts 1 & 2)

E1. Methods to Generate Evidence That Meets WWC Standards Without Reservations

Evaluation Design. To examine the impacts of Reading Reimagined on student and teacher outcomes, as shown in the logic model (Appendix G), AIR will use a school-level cluster randomized controlled trial (RCT). We will collect data from teachers and students from 40 elementary schools in a large district during SY 2026–27. We will randomly assign schools with equal probability to the intervention (Reading Reimagined) and control conditions. Schools in the intervention group will implement the Reading Reimagined instructional model with all teachers in Grades 2–5 for 1 year. In the control group, teachers will continue their business-as-usual practice and will be offered opportunities to participate in the Reading Reimagined program during the following year, SY 2027–28. This school-level RCT is designed to *meet WWC evidence standards without reservations* by (a) mitigating sample attrition, (b) reducing the likelihood of contamination, and (c) excluding from analyses joiners who enter participating schools after randomization.

Mitigating Sample Attrition. Attrition will be minimized through several mechanisms. First, the risk of attrition is minimized by conducting random assignment close to the start of the school year and because the program is completed within 1 school year (compared with the risk of losing participants in multiyear interventions due to turnover, study fatigue, and participant disengagement). Second, to further minimize the risk of teacher-level and school-level attrition, we will keep in close contact with intervention and control schools to address any issues that arise, and we will offer teachers incentives for data collection to encourage participation. Third, to minimize student-level attrition, we will rely exclusively on secondary data such as test scores

and will obtain student administrative records from participating districts. Fourth, the offer of delayed treatment can encourage control schools and teachers to stay in the study.

Reducing Likelihood of Contamination. The evaluation design will reduce the likelihood of contamination by using schools as the unit of random assignment. Reading Reimagined is designed for teachers to participate together with their school-based colleagues as a team, so school-level random assignment is appropriate. School-level random assignment will produce a study with strong internal validity and is associated with low risk of contamination or "spillover" effects. (Contamination is more likely to occur with within-school teacher-level random assignment, as teachers collaborate and share information with their colleagues.) Although teachers may independently transfer or may be reassigned by their local education authorities from control schools to intervention schools, we will not offer them the intervention materials or support that will be provided to teachers in the intervention schools.

Excluding From Analyses Joiners Who Enter Participating Schools After Randomization. The evaluation design will exclude from analyses teachers who enter participating schools after randomization. Although school-level random assignment reduces the risk of contamination, it may introduce the risk of bias in impact estimates if teachers choose to transfer into schools in the intervention condition after learning about the opportunities that are unique to intervention schools. In accordance with the current WWC Procedures and Standards Handbook, Version 5.0, we will include student joiners because they present low potential for bias. AIR will establish participant teacher lists and collect classroom rosters to identify the students that each participating teacher instructs prior to random assignment to define the intent-to-treat (ITT) samples and track their status throughout the study. Further, to eliminate the risk

that joiners will bias impact estimates, random assignment results will not be shared with students, families, and teachers until after the school year begins in the fall of 2026.

Sample and Statistical Power. The proposed evaluation of Reading Reimagined will have sufficient power to demonstrate meaningful impact on student and teacher outcomes. UnboundEd will recruit 40 elementary schools from a large district where there is a high density of use of African American English (AAE) dialect. Recruitment will focus on elementary schools that administer a valid and reliable universal screener in literacy (e.g., DIBELS; NWEA MAP) at the beginning, middle, and end of the year. We will recruit an average of eight Grade 2–5 teachers to participate from each study school. The student sample will include all students enrolled in class for each participating teacher. We calculate statistical power separately for the two student outcomes (ELA standardized test scores and the universal screener in literacy) because we will only collect state standardized test scores for Grade 4–5 students and universal screener data for Grade 2–3 students. With a sample of approximately 160 teachers and 4,800 students in 40 schools across one district, the study is powered to determine a minimum detectable effect size (MDES) of 0.19 on students' reading outcomes. With a sample of 320 teachers in 40 schools in one district, the study is powered to determine an MDES of 0.29 on teacher survey-based outcomes. We assume as much as 25% student and teacher attrition. These effect sizes fall in the range of practically meaningful effect sizes based on prior meta-analyses focused on teacher coaching, which found an average effect of 0.18 SD on student achievement (Kraft et al., 2018), and an impact evaluation study of a similar professional development intervention on teacher survey–based outcomes in which effects were as large as 0.96 (Meyers et al., 2016). For technical details about statistical power analyses, see Appendix J.5.

Baseline Equivalence. Although the design includes multiple approaches to minimize attrition, we will assess overall and differential attrition. If there is high attrition, we will assess the extent to which there is equivalence across conditions on baseline student and teacher outcomes. Impact models will include these pretest measures as covariates. In the unlikely case of high and/or differential attrition, we will use multiple imputation (Graham, 2009).

Impact Analysis. AIR will examine teacher survey outcomes and student test scores in an ITT model that includes all schools regardless of level of implementation. AIR will conduct impact analyses using a hierarchical linear modeling (HLM) approach to accommodate the nested nature of the design. We will estimate three-level models with students (Level 1) nested in teachers (Level 2) nested in schools (Level 3) to estimate the 1-year effects of RR on student reading outcomes (**RQ 1**). We will estimate two-level models with teachers (Level 1) nested in schools (Level 2) to estimate effects of Reading Reimagined on perception and pedagogy regarding the use of AAE, use of culturally relevant instruction, and teaching self-efficacy (**RQ 2**). We will control for student, teacher, and school characteristics, as well as baseline student and teacher outcome measures, to improve the precision of the estimates. A school-level intervention indicator will denote whether the school participated in the Reading Reimagined program. The team will account for missing data in the impact analyses in accordance with WWC guidance.

To answer **RQ 3** and explore the extent to which Reading Reimagined effects vary for different students or teachers, AIR will examine whether the effects of RR are moderated by student characteristics (e.g., high density AAE dialect speaker) or teacher characteristics (e.g., race/ethnicity). To answer **RQ 4**, we will examine whether the effects of RR on student

outcomes are mediated by teacher outcomes (e.g., perception and pedagogy regarding the use of AAE, use of culturally relevant instruction, and teaching self-efficacy), mechanisms through which Reading Reimagined aims to affect student outcomes. See Appendix J.4 for full analytic details.

E2. Methods That Provide Performance Feedback and Periodic Assessment of Progress

The multicohort design of the proposed evaluation will include regular collection of implementation data from a variety of sources for the two pilot study cohorts and the impact study cohort. The pilot study cohorts will provide formative feedback that will lead to program refinements, optimizing the Reading Reimagined program for the impact study. As summarized in Appendix J.1, we plan to collect Reading Reimagined program data, including attendance logs and facilitator checklists, to ensure that all components of the initial training are implemented as intended. Using a survey, we will also elicit teachers' feedback on the 4-day training immediately after the completion of each day of professional learning; the survey will capture teachers' initial perceptions of the program. To document teachers' implementation fidelity, we will collect instructional coaches' site visit reports, which will provide valuable insight on teachers' implementation of the Reading Reimagined lessons and will also document the instructional coaching support provided to treatment teachers (e.g., classroom observations and feedback, modeling lessons, co-teaching). In addition, we will collect survey data on teachers' experiences with and perceptions of the Reading Reimagined program. During the pilot study cohorts, we also plan to conduct two focus groups per year with a sample of Grade 4–5 students to learn about students' perceptions of teachers' use of explicit differentiated instruction on

Reading Reimagined   31

dialect shifting and students' engagement in the literacy classroom. Pilot study data collection will also include teacher surveys with 48 teachers across six school sites, 30-minute interviews with 12 teachers, and 30-minute interviews with four CORE coaches. We will review the various types of implementation data collected, and we will share what we have learned from these data with UnboundEd and CORE during monthly meetings, focusing on progress made and obstacles encountered in program implementation as well as actionable feedback.

The rich implementation data collected from the pilot cohorts will be instrumental in refining Reading Reimagined and preparing for implementation in a rigorous impact evaluation. The additional data collected from the impact cohort will allow us to continue to gather feedback on program implementation throughout the evaluation phase. Together, the various types of data collected from all three study cohorts will allow us to monitor and assess the progress of program implementation at regular intervals and will provide valuable formative feedback to inform continuous improvement of the Reading Reimagined program. These data also will be used to examine teachers' and students' perceptions of the program (**RQ 5**), assess implementation fidelity (**RQ 6**), and identify factors that may hinder or facilitate the implementation of Reading Reimagined (**RQ 7**), which will deepen our knowledge about the program and contribute to future program refinement and continuous improvement efforts.

E3. Clear Articulation of Components, Mediators, and Outcomes and Thresholds

The design of the proposed evaluation is informed by clearly articulated key program components, mediators, and outcomes as depicted in the logic model in Appendix G. As the logic model shows, Reading Reimagined includes two key components, each with multiple

subcomponents. Together, the key components of the Reading Reimagined program are expected to improve teachers' perception and pedagogy regarding the use of AAE, use of culturally relevant instruction, and self-efficacy. These teacher outcomes are hypothesized to mediate the impact of Reading Reimagined on student reading outcomes (see Appendix J.4 for details about mediation analysis), including reading comprehension.

Key Teacher and Student Outcomes. The evaluation design will use valid and reliable measures that capture outcomes that Reading Reimagined is expected to affect (see the logic model in Appendix G). The outcome measures are not over-aligned with the intervention and will be consistently collected in both the treatment and control conditions. For teacher outcomes, AIR will use established, validated measures with sufficient reliability for perception and pedagogy regarding the use of AAE (Gupta, 2010) and self-efficacy (Tschannen-Moran & Hoy, 2001), which is reviewable under WWC Standards Version 5.0, and will develop measures for teacher use of culturally relevant instruction. We will administer the survey before random assignment (at baseline) and again at the end of the program year (see Appendix J.1 and J.2). Given the focus of Reading Reimagined on literacy in the proposed project, the primary student outcome for the project evaluation is students' reading outcomes at the end of the program year as measured by the state standardized assessment in ELA for students in Grades 4 and 5 and the universal screener in literacy such as DIBELS for students in Grades 2 and 3, which are considered valid and reliable by WWC standards.

Implementation Thresholds. For the proposed evaluation, we have specified initial measurable thresholds for acceptable implementation for both the professional learning program and the teacher supports; these will be used to address **RQ 6**. We will work with UnboundEd and

CORE and draw on the implementation data from the pilot cohorts to finalize the fidelity thresholds and apply them to the impact cohort. For the professional learning component, we anticipate that acceptable implementation will require meeting the following thresholds for the two subcomponents of the professional learning: (a) CORE facilitates 24 hours of in-person learning prior to or at the start of the school year; (b) at least 80% of eligible teachers from treatment schools attend all 4 days of training.

For the teacher supports component, acceptable implementation requires the following: (a) CORE coaches provide seven days of instructional coaching support to all treatment school (mix of individual/small group and mix of in-person/virtual); (b) at least 80% of treatment teachers engage in six hours of coaching with CORE coaches; and (c) at least 80% of treatment teachers implement the Reading Reimagined lessons in the classroom. We will also create an overall, school-based fidelity measure for meeting fidelity across all indicators. On the basis of prior research on fidelity in RCTs (Durlak & DuPre, 2008; Hill & Erickson, 2019), we will use the following school-level implementation fidelity thresholds for each key program component and for overall fidelity: low, inadequate fidelity (less than 60% meet the target); moderate, acceptable fidelity (60%–80%); and high fidelity (above 80%).